On a Stable 2π-type β-Ray Counter

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42. On a Stable 2π-type β-Ray Counter.

Sakae Shimizu, Yoshiaki Uemura and *Yoshio Saji.*

The 2π-type β-ray counter reported in the preceding paper was found to be somewhat unstable for a very large counting rate and long time use. This unstability may be due to the surface charge on the mica window. So we enlarged the distance between the window and the top of central wire. As a result of this modification, we obtained a fairly stable counter. Further, by housing the whole counter in an earthed shield-tube, we succeded in construction of a very stable counter. Using the counter of this type, we obtained a value of $2057 \pm 23.6/2$ min for 8 runs of measurements under continuous irradiation of Ra-γ at the rate of 6×10^5 counts per hour. In this case the inevitable fluctuation of radioactivity was found to be 17.3.

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43. Observation of the B (n, α) Li Reactions by the Wilson Cloud Chamber.

Masateru Sonoda, Jiro Muto and *Shinjiro Yasumi.*

In order to investigate the β-disintegration of Li^8 nucleus, the B (n, α) Li reaction was studied by the expansion chamber. Methyl alcohol was used as the liquid, which boric acid was thrown into. The neutron source of 50 mg Ra + Be was situated at the distance of 25 cm from the chamber, which was screened from the direct γ-rays of the source by a lead block of 14 cm thickness.

The tracks were photographed stereoscopically by means of a system consisting of one camera and two vertical mirrors. About 400 sheets of photographs were obtained.

Investigating those photographs by the so-called "reprojecting method", about 30 short tracks probably assignable to the B^{10} (n, α) Li^7 reaction were observed, whose ranges were about 10 mm. But the tracks due to the disintegration of the Li^8 nucleus, were not obtained.

In order to determine spacial arrangements of the tracks, the reprojecting method was used, in such a way as to replace the developed negatives in the exact position in the camera, where the film occupied at the moment the exposure was made, illuminating the film from behind the camera and reconstructing the contour of the original tracks on the object plane.

About the reprojecting method, the following points would be emphasized:

(i) We used the "mosaic shutter" between the reprojecting light source and